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WHERE EVERYTHING CONNECTS: HOW ENVIRONMENTAL, ENERGY AND ECONOMIC DEVELOPMENT ISSUES ARE COMING TOGETHER

Good Evening. When David Preece asked me some months ago to speak to your annual meeting on the subject of the environment, energy and economic development, he clearly knew how important a topic energy had become, but I'm not sure any of us would have expected it to be one of the central issues in this fall's Presidential election campaign.

Now it's not my intention tonight to weigh in on, or even to "drill" down on, that contest, but it is important to recognize that what we're really facing here is a need to confront the future – a very real need to decide how long we're going to keep living off of the energy sources that have fueled the past century and how, and how quickly we're going to move to a new way of living that's based on a far more diversified energy mix than what we have today. This isn't just an idle academic question. There is a huge economic development potential for New Hampshire and our nation if we can approach this opportunity with resourcefulness, ingenuity, inventiveness and an entrepreneurial spirit. In my travels around New Hampshire, I hear from many people, and the theme of energy use and high energy costs has become nearly universal. I also hear from a lot of people expressing concerns about climate change and wondering what we, in little old New Hampshire, and as individual citizens through our own actions, can really do to help address that monumental challenge. And I hear questions from citizens asking how each

of us can minimize our own impacts on our natural environment as a consequence of growth, sprawl and transportation use.

What I hope to express to you this evening is that these issues – environment, energy, and economic development – are interrelated, just as our ecological systems consist of many interrelated and interdependent elements. Likewise, well-crafted solutions to these issues can and will be interrelated and will create benefits in all of these arenas, across the state and for all of our citizens.

Issues such as energy use and climate change are big and seemingly intractable – a far cry from the single medium environmental issues that we have addressed over the past 30 years. We haven't quite vanquished them forever, but heavily polluted waterways, horribly unhealthy air, and severely contaminated sites are now largely a thing of the past. We've enacted laws and adopted rules that cracked down on the smoke stacks and discharge pipes of big industrial polluters, we've provided funding to construct municipal wastewater treatment plants, we've cleaned up many waste piles and contaminated aquifers, and we've provided treatment and protections for drinking water supplies. Using a command and control approach, we have made major progress in cleaning up the environment and improving public health.

But today we look around New Hampshire and see that some of the most significant impacts on our environment are not just due to a few large sources. For example, the pollutants in our air today are nearly as much due to what comes out of the tailpipes of

our 1.3 million cars and trucks here in the Granite State as they are due to power plants and factories located upwind in the Midwest and here in our own state. More and more, this is about what each one us individually can do to help improve our environment and to be a steward of our natural resources.

Let me share with you a few staggering statistics:
Every day in New Hampshire, we travel a collective 43 million miles in our cars, trucks and buses (or at least we did before gas prices peaked earlier this summer), resulting in the consumption of 700 million gallons of gas and 200 million gallons of diesel fuel annually, and wracking up some 15.7 billion miles per year on the state's roads and bridges. And it's more than just a footnote that a substantial portion of the approximately $3 to 4 billion that we spend on that fuel doesn't stay here in New Hampshire's economy but instead goes out-of-state or overseas.

Let's talk about electricity: collectively we in New Hampshire consume 11 million megawatt hours per year to light, heat, cool and operate our homes, offices, factories and schools. And what is the impact of the myriad computers and other electronic devices that we all need today? In the US alone, the so-called "WALL WARTS" (everything from cell phone chargers to blue readout lights and digital clocks on appliances) and the low power levels needed to maintain equipment in "sleep" mode use enough electricity in a year to power the entire countries of Greece, Peru and Vietnam put together. Water and wastewater plants use 3% of the nation's electricity, which equals the entire California residential use.

We have a forum here in New Hampshire right now that is looking at these very issues and challenges, and formulating recommendations for integrating our state's approach to these issues. The Climate Change Policy Task Force, established last December by Governor Lynch, is charged with identifying concrete action steps that New Hampshire can take to address the climate change challenge and at the same time lower our energy costs. I want to stress that regardless of what one's take is on the science with respect to climate change – whether you believe climate change is occurring, and if it is, whether you believe that mankind is contributing to that change – really doesn't matter. Because a happy co-benefit is that we're finding that the most viable solutions to climate change involve reducing energy usage in ways that save money for our citizens, businesses and taxpayers and create new economic opportunities. In other words, cutting energy use and spending less on energy are simply the right thing to do.

I serve as Chairman of the Task Force, and we just held our fifth all-day meeting today (September 12, 2008), at the new Public Library in Portsmouth. As a side note, the library meets the criteria for Leadership in Energy and Environmental Design (also known as LEED). As a LEED certified building, it is not only very energy efficient (and, therefore, less expensive to operate and maintain), but also the entire process of building the facility incorporated many other sustainable building practices such as reducing waste, eliminating exposure to chemicals and increasing use of recycled materials. So, in the final tally the overall impact that library building has on the environment is far less than would have resulted from conventional design and construction methods.

Back to the work of the Task Force: Our 28 members are looking at a wide range of potential actions that will save us all money on energy costs, keep more of the money spent on energy circulating in the NH economy rather than being shipped overseas, and substantially reduce overall greenhouse gas emissions. For the past several months, we have had working groups, comprised of some 120 volunteers representing expertise and interests from all sectors of society, developing information on a wide range of potential actions in six different arenas. We've looked at Electric Generation and Usage, as well as Transportation and Land Use. We've also focused on Residential, Commercial and Industrial settings, and on the Agriculture, Forestry and Waste sectors. We've been looking at ways that Governments at all levels can provide leadership and take action. And we have also been identifying adaptation measures that should be taken to enable our communities to save money on infrastructure upkeep and repairs in the long-term by reducing our vulnerability to extreme weather and storm events.

The Task Force has identified several major categories of actions that should be given attention early in this process. These include promoting energy efficiency, developing more renewable energy sources, addressing the role of transportation and land use in reducing energy demand, and providing more education and outreach about energy use and climate change. We will be holding a series of Public Listening Sessions around the state starting next week, including one session here in Manchester on the evening of Thursday, September 18 from 6-9 p.m. at the PSNH auditorium on Commercial Street. We very much want to hear from members of the public with their ideas about actions

that can be taken to address climate change and energy usage while also creating new jobs and economic opportunities. And if you can't make it to one of the listening sessions, we also welcome written comments. You will find flyers in the DES newsletters at each table with more details about these upcoming sessions. Obviously we don't yet know which of the many potential actions that are under consideration will be finally recommended by the Task Force in its report that's due out in December of this year, but I think it may be instructive to review a few examples to help give you a sense of how addressing climate change will actually save money, create jobs and improve our economy. For each of the potential actions under consideration, a team of scientists and economists from UNH have analyzed and estimated not only the likely reductions in greenhouse gas emissions but also the economic benefits. So, for example, they have estimated that making a substantial portion of existing homes 60% more efficient would result in the year 2025 in a reduction of nearly 3.5 million metric tons of greenhouse gases at a net savings of nearly $1.6 billion to New Hampshire homeowners in that year alone.

Given these kinds of numbers, one of the potential actions in the energy efficiency arena that is receiving considerable attention involves increasing the energy efficiency of New Hampshire's housing stock. The technology, equipment and expertise exist today to substantially reduce the amount of energy needed to heat and cool the average older home, as well as to make new homes very efficient from the outset. In older homes, this may take the form of such measures as spraying some foam insulation into walls or spaces around pipes, electrical outlets and along sills, putting caulking and

weatherstripping around door and window frames, replacing old windows, or installing programmable thermostats. Studies have shown that existing homes can be made anywhere from 15 to 60% more energy efficient by the use of these and other techniques. Typically the initial capital costs are rapidly offset by the savings in heating costs. And while many of these measures can be undertaken by your average do-it-yourselfer, there is also a potentially huge market for building contractors and others to provide these services. Given that the current NH housing stock consists of approximately 500,000 homes, it's clear that there's a substantial market here for energy efficiency services relating just to heating and cooling, not to mention lighting and other electrical usage. That equates to thousands of jobs in construction and related trades over many years. If by the year 2025 we were to collectively retrofit half of the state's existing homes, the reductions in greenhouse gas emissions from reduced use of heating oil, natural gas, and other fuels in that year alone would be very substantial – equivalent to the annual emissions from approximately 100,000 cars. And obviously this would also bring very substantial financial savings to New Hampshire's households.

In the renewable energy arena, our legislature has already taken major steps forward by enacting a renewable portfolio standard that requires a substantial portion of our electricity to come from renewable sources such as hydro, wind or biomass. In addition, enactment earlier this year of the Regional Greenhouse Gas Initiative (also known as "reggie" or RGGI) will provide further impetus for investment in renewable energy sources. Of equal importance, the sale of RGGI allowances for emissions of carbon dioxide from large power plants will generate funds that will be used to help improve

energy efficiency across all sectors of the economy, including helping to weatherize homes for our most economically disadvantaged and vulnerable citizens. Importantly, economic studies performed by UNH on both the RPS and RGGI programs demonstrated that they would be net job-creators in the long-term, and over time, through increased fuel diversity and investment in energy efficiency, will help to reduce our average monthly electric bills.

It's instructive to look at the very small country of Denmark (population 5.5 million), which now produces one-third of the world's terrestrial wind turbines, and whose annual energy technology exports are over $10.5 billion and growing. According to a recent opinion piece by Tom Friedman in the Wall Street Journal, over the past 18 months, there have been 35 new wind turbine companies coming out of China, but not a single one out of the US. Why couldn't and why shouldn't New Hampshire have a piece of this important and growing market? One could ask the same thing about solar technologies, geothermal heating systems, electric and other components of electric-powered vehicles, and wastewater treatment plants that actually generate energy. Some aspects of all of these potential new industries are already underway or starting to gain traction here in the Granite State. These industries provide "green collar" jobs that pay well, that require people who have both blue collar and white collar skills and knowledge, and that are a great fit for New Hampshire.

And who doesn't love a tree? Let's not forget that New Hampshire's lands are 84% forested, and that the forest products industry has been and will be a key component of

our state's economy. The potential of our forests to provide a sustainable, and effectively carbon-neutral fuel supply can not be overlooked. The simple truth is that trees contain (the technical term is "sequester") substantial amounts of carbon as they grow. When they die and rot back into the earth, all of that carbon is released into the atmosphere in the form of carbon dioxide. If, instead, the tree is converted into firewood, the same amount of carbon dioxide is released when it is burned for heat or even electricity, as would be if the tree just rotted away. So, as long as new trees are planted and grown to replace those that were turned into firewood, we're not effectively adding any new carbon dioxide emissions to the atmosphere. Contrast this with burning fossil fuels such as gasoline or coal, in which we are releasing into the atmosphere carbon that was bound up in the earth hundreds of millions of years ago, and which can't quickly (within a human lifetime or even a few human lifetimes) be re-sequestered by growing new oil or new coal. The point is that if we carefully manage New Hampshire's forests for the long-term, we can not only help to control overall carbon dioxide levels in the atmosphere by sequestering lots of it, but we can also boast that we have a renewable energy source that is climate-friendly, and we can keep New Hampshire looking like New Hampshire. We could be heating a significant percentage of our homes and buildings with wood in the form of firewood, wood chips and wood pellets, and still have wood available to generate some electricity and to create durable wood products such as construction materials and furniture. There are already wood pellet manufacturing plants in New Hampshire, and more may be on the way. And entrepreneurs are starting to talk about building wood pellet furnaces and stoves here. In addition, some of New Hampshire's scientists are also on the cutting edge in developing technologies for deriving cellulosic ethanol fuel from

tree fiber and other plant materials. These technologies are spurring investments, which in turn are creating new businesses and new jobs.

But this home-grown natural resource base is also at substantial risk. Right now in an average year we're seeing about 17,500 acres of New Hampshire's forests being converted into new housing developments, shopping malls, and other uses. By recognizing the true value of our forests as a great energy source, we may be able to slow, if not reverse, this trend, and help ensure that New Hampshire will have its own, indigenous, renewable energy source for the long-term.

So coming back to where I started this evening, confronting the future of our energy use is a hopeful, not a daunting prospect. The bottom line is simply this: We already have in hand today a set of technologies and approaches that can save us large sums by reducing our energy use, substantially cutting our greenhouse gas emissions, and creating new economic opportunities. In the future there won't be a single source of energy for electricity, transportation, heating or cooling. Instead, our fuel mix will be even more diversified than it is today. It's also likely that we will see far more very small power generators – what is being called "distributed generation" – and less dependence on the electric grid and very large power plants to meet all of our electric needs. All of this change will continuously create opportunities for new jobs and economic growth.

While no one likes paying more for anything, let alone for energy, the old adage that "necessity is the mother of invention" is certainly proving itself to be true. Across the

state, throughout the country, and around the world, we are witnessing a flurry of innovation in the energy field. Creative people are finding ways to make old engines work better, they're inventing new engines, creating new, greener fuels, and discovering ways to actually build and run equipment that needs only a fraction of the energy that older models required and that create very low or no emissions. While technology by itself is not the only answer to the twin challenges of climate change and energy use, it will be a very powerful tool, and it will bring to New Hampshire and the wider world substantial economic growth and benefits, and it's already starting to do so. And if we choose and design our new technologies carefully, we can use less energy and have little or no environmental impact.

We have an opportunity now, if not an obligation, to move as quickly as we can to address the twin challenges of energy use and environmental protection by developing and using home-grown energy sources as well as technologies that save energy. In so doing we will create many new jobs and economic opportunities for New Hampshire's people and businesses. We can insulate ourselves from the volatility of world energy prices and at the same time make New Hampshire a better place to live.

Governor Lynch and I are committed to providing the next generation of New Hampshire citizens with a natural environment that is cleaner and healthier than that which was left to current generations. We can do this, we're already doing this, and we can do it even more effectively with the help and involvement of the Southern New Hampshire Planning Commission as we all work together to build a stronger economic future and a better

environment for New Hampshire by integrating and harmonizing our energy use, environmental protection and economic development.

Thank you.